Patent Claims

What is claimed is:

1. A method for producing cell lines or individual organs, differentiable donor cells (6) being supplied to a nonhuman morula (7) or nonhuman blastocyst (1), which are cultivated under conditions that ensure a further development of the morula (7) or blastocyst (1) in stages in which newly formed cell lines having a higher degree of differentiation occur, and comprising the isolation of the cell lines or further differentiation of the cell lines into organs through transfer of the blastocyst (1) into a surrogate mother animal,
characterized in that the cells (2) of the morula (7) or the internal cell mass (4) of the blastocyst (1) have a restricted survivability in comparison to the particular wild type or their survivability is reduced through suitable cultivation conditions, and the donor cells (6) supplied to the morula (7) or blastocyst (1) have varying degrees of differentiation and are of non-embryonic origin.

2. The method according to Claim 1,
characterized in that the donor cells (6) contain naturally occurring stem cells.

3. The method according to Claim 1 or 2,
characterized in that the cells (2) of the morula (7) or the internal cell mass (4) of the blastocyst (1) are prepared in a culture dish (8, 9, 10) or are used to prepare a soluble matrix fraction.

4. The method according to one of Claims 1 through 3, characterized in that the donor cells (6) are obtained from umbilical cord blood.

5. The method according to one of Claims 1 through 3, characterized in that the donor cells (6) are obtained from placenta.

6. The method according to one of Claims 1 through 3, characterized in that the donor cells (6) are obtained from bone marrow.

7. The method according to one of Claims 1 through 3, characterized in that the donor cells (6) are obtained from fatty tissue.

8. The method according to one of Claims 1 through 7, characterized in that the cells (2) of the morula (7) or the internal cell mass (4) of the blastocyst (1) are tetraploid cells.

9. The method according to one of Claims 1 through 7, characterized in that the cells (2) of the morula (7) or the internal cell mass (4) of the blastocyst (1) has cells whose genome contains vectors that cause a lethal sensitivity to appropriate cultivation conditions in comparison to the particular wild type.

10. The method according to one of Claims 1 through 7,

characterized in that the genome of the donor cells (6) contains a vector which causes a resistance to additives of culture media.

11. The method according to one of Claims 1 through 7, characterized in that the survivability of the cells (2) of the morula (7) or the internal cell mass (4) of the blastocyst (1) is reduced by adding suitable antibodies.

12. The method according to one of Claims 9 through 11, characterized in that the survivability of the cells (2) of the morula (7) or the cells of the internal cell mass (4) of the blastocyst (1) is reduced in a way that is tailored to the varying degrees of differentiation of the donor cells (6) and is chronologically well-ordered.

13. The method according to one of Claims 1 through 12, characterized in that before the donor cells (6) are supplied into the morula (7) or the blastocyst (1), the donor cells (6) are brought into contact in culture dishes with other blastocysts or internal cell masses isolated from other blastocysts, and those donor cells having a relatively high contact affinity are isolated and supplied to the morula (7) and/or blastocyst (1) first cited.

14. The method according to one of Claims 1 through 12, characterized in that before the donor cells (6) are supplied into the morula (7) or the blastocyst (1), the donor cells (6) are equipped with a genetic marker that ensures cells having a lower degree of differentiation are isolated and supplied into the morula (7) or blastocyst (1).

15. The method according to one of Claims 1 through 14, characterized in that the morula (7) or blastocyst (1) is a mouse morula or mouse blastocyst.

16. The method according to one of Claims 1 through 14, characterized in that the morula (7) or blastocyst (1) is a pig morula or pig blastocyst.

17. The method according to one of Claims 1 through 16, characterized in that when the donor cells (6) are supplied to a blastocyst (1), the supply is performed through injection.

18. The method according to one of Claims 1 through 16, characterized in that when the donor cells (6) are supplied to a morula (7), the supply is performed through aggregation.

19. The method according to one of Claims 1 through 18, characterized in that the donor cells (6) are human donor cells.

20. A use of cell lines produced according to Claim 19 as a preparation for diagnostic and therapeutic intervention and for scientific purposes in illnesses of humans.

21. A use of cell lines produced according to Claim 19 for producing organ structures for therapeutic, diagnostic, or scientific application in illnesses of humans.

22. The use according to Claim 20 or 21 of cell lines produced according to Claim 19,

characterized in that the illnesses of humans are cardiac/circulatory illnesses, neurological illnesses, reproductive disorders, cancer, ophthalmopathies, hormonal disorders, pulmonary illnesses, metabolic disorders, hereditary illnesses, illnesses of the locomotor, support, and ligament apparatus, illnesses of the skin, the cartilage, and the bone, as well as autoimmune disorders.

23. The method according to one of Claims 1 through 18, characterized in that the donor cells (6) are donor cells of non-human mammals.

24. A use of cell lines produced according to Claim 23 as a preparation for diagnostic and therapeutic intervention and for scientific purposes in illnesses of nonhuman mammals.

25. A use of cell lines produced according to Claim 23 for producing organ structures for therapeutic, diagnostic, or scientific application in illnesses of nonhuman mammals.

26. The use according to Claim 24 or 25 of cell lines produced according to Claim 23,
characterized in that the illnesses of mammals are cardiac/circulatory illnesses, neurological illnesses, reproductive disorders, cancer, ophthalmopathies, hormonal disorders, pulmonary illnesses, metabolic disorders, hereditary illnesses, illnesses of the locomotor, support, and ligament apparatus, illnesses of the skin, the cartilage, and the bone, as well as autoimmune disorders.

The patent attorney